

1/2 008

UNCLASSIFIED

PROCESSING DATE--18SEP70

TITLE--PHASE COMPOSITION OF CARBONIFEROUS FERROCHROMIUM SLAGS DURING
OPERATIONS USING MAGNESIAN CHROMIUM ORES -U-
AUTHOR--(05)-KATS, M.SH., ZHURAVLEV, V.M., AGANICHEV, P.V., MELNICHENKO,
N.V., UHAROV, K.U.
COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, METAL. 1970, (1), 74-9

DATE PUBLISHED-----70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY, CHEMISTRY

TOPIC TAGS--FERROCHROMIUM, METAL ORE, ELECTRIC CONDUCTIVITY, SPINEL,
MAGNESIUM COMPOUND, CHROMIUM COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1984/0157

STEP NO--UR/0370/70/000/001/0074/0079

CIRC ACCESSION NO--AP0054953

UNCLASSIFIED

272 008

CIRC ACCESSION NO--AP0054953
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--18SEP70

SLAGS WAS DETD. BY CHEM. AND MINERALOGICAL ANAL. THE PHASE COMPN. OF FERROCHROMIUM
ON THE FACT THAT MGO DOES NOT TAKE PART IN THE CR SPINEL COMPLEX AND
FORMS A PART OF THE ORTHOSILICATES. THE OXIDES OF THE R SUB2 O SUB3
TYPE DO NOT DISSOLVE IN ORTHOSILICATES, AND THEY ARE DISTRIBUTED BETWEEN
THE CR SPINEL AND THE GLASS. THE HIGH CONTENT OF MICROCHROMITE IN THE
CR ORE AND THE EXCHANGE OF AL SUB2 O SUB3 AND CHROMIC OXIDE IN THE
SPINEL PHASE OF CARBONIFEROUS FERROCHROMIUMS NEG. AFFECT THE REDN. THE
ELEC. COND. IS IMPROVED BY AN INCREASED VALUE OF THE RATIO MGO:AL SUB2 O
SUB3.

UNCLASSIFIED

USSR

Infrared Rays

UDC 621.315.592

DEMESHINA, A.I., MORZIN, V.N., UMAROV, I.M. [Institute Of Physics imeni P.N. Lebedev, AS, USSR, Moscow]

"Longwave Infrared Absorption Spectra Of n-Type Indium Antimonide"

Fizika i tekhnika poluprovodnikov, Vol 6, No 4, Apr 1972, pp 609-614

Abstract: Measurements are made of the absorption spectra of pure crystals of n-InSb (in disks 9-mm in diameter and 0.08-3.5-mm thick) with $N_D - N_A \approx 5 \cdot 10^{15} \text{ cm}^{-3}$ in the far-infrared region of the spectrum of 50-2000 micrometer at a temperature of 1.6--3.5° K in various magnetic fields with an intensity up to 40 kilogram force. It is shown that in the majority of crystals, the absorption increases with a decrease of frequency approximately as $C(\omega)^{-3.1}$, starting with an energy of 4.7 Mev, and in the interval of the spectrum investigated the electronic transition from the zone of the impurity states into the InSb is determined. Two regions with different absorption mechanisms were located as a result of the measurements. In the region $h\nu \geq 4 \text{ Mev}$, spectra of cyclotron absorption were observed, connected with transitions among the different Landau levels of free and impurity electrons. In the longest wave part of the infrared spectra absorption bands were observed, resulting from transitions between the principal and excited states of the fine donor impurities in the InSb within the limits of the system of sublevels of the Landau lower levels. In the crystals investigated separation of the zone of impurity states from the conduction band

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DEMESHINA, A.I., et al, Fizika i tekhnika poluprovodnikov, Vol 6, No 4, Apr 1972, pp 609-614

was observed in the magnetic fields $H \geq 10$ kilogram force. The authors thank B.M. Vul and V.S. Vavilov for their interest in the work and V.V. Buzdin for his assistance during the measurements. 4 fig. 20 ref. Received by the editors, 9 Feb 71; in finished rewording, 27 May 71.

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USSR

UDC: 51:155.001.57:681.3.06

VORONIN, Yu. A., MARASULOV, A. F., UMAROV, R. D., KHALIKOV, A. K.
"Introducing Measures of Similarity and Relation for Solving Geological
and Geophysical Problems"

V sb. Mat. probl. geofiz. (Mathematical Problems of Geophysics--collection
of works), vyp. 2, Novosibirsk, 1971, pp 305-310 (from RZh-Kibernetika,
No 12, Dec 71, Abstract No 12V1029)

Translation: The paper presents an axiomatic approach to introducing
measures of similarity on a set of objects, and measures of relation
on a set of properties, and also measures of similarity between sets of
objects for solving geological and geophysical problems. V. Mikheyev.

USSR

LECHENKO, Ye. N., and UNANOV, S. S., Moscow Scientific Research Institute of
Virus Preparations
"A Study of the Properties of A2 Influenza Virus Strains Isolated During the
1969 Influenza Epidemic"

Moscow, Voprosy Virusologii, No 4, Jul/Aug 71, p 493

Translation: The antigenic and biological properties of 19 influenza virus strains isolated from patients in Moscow, Rostov-na-Donu, and Voronezh during the 1969 epidemic were investigated. It was established that all of the isolated strains were varieties of Hong Kong A2 influenza. Strains were sensitive to inhibitors and nonpathogenic and nontoxic to adult white mice. Inoculation of newborn white mice with these strains caused death in 50-60% of the experimental animals. The strains exhibited weak enzymatic activity and caused little elution from chick erythrocytes even after 2 hours of interaction. A somewhat greater eluent activity was displayed by mutants resistant to inhibitors. The strains isolated in 1969 were not transformed into markers which indicates that they were genetically different from the A2 influenza strains isolated in 1965-1967.

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USSR

UMAROV, S. Ye.

UDC 519.281

"Use of Method of Sequential Analysis to Check Simple Hypotheses in Samples of a Finite Set"

Nauchn. zap. Tashkent. In-t nap. Kh-va [Scientific Writings of Tashkent Economics Institute], No 34, 1970, pp 51-67, (Translated from Referativnyy Zhurnal, Kibernetika, No 10, 1971, Abstract No 10 V319 by A. Yashin).

Translation: The problem is studied of performance of acceptance testing of products by sequential analysis. A method is presented for the calculations necessary for the performance of sequential analysis in the case of a finite set. Based on a precise formula (hypergeometric distribution), the author uses examples to estimate the accuracy of calculations using the binomial distribution. A comparison is presented with the formulas for the generalized Poisson (reverse binomial) distribution. The results of the comparison are presented in Tables and Graphs.

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030
TITLE--FUNCTIONAL CHANGES OF THE PANCREAS IN PATIENTS WITH GASTRODUODENAL
PEPTIC ULCER -U- UNCLASSIFIED
AUTHOR--(04)-SAVELYEV, V.S., UMBRUMYANTS, A.A., KHRUSHCHOVA, V.M.,
PROKOPYEVA, ZH.F.
COUNTRY OF INFO--USSR
SOURCE--KHIRURGIYA, 1970, NR 4, PP 55-59
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--DIGESTIVE SYSTEM DISEASE, PANCREAS, TRYPSIN, BLOOD SERUM,
INHIBITION, SURGERY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FAME--1983/1237
CIRC ACCESSION NO--AP0054132
STEP NO--UR/0531/70/000/004/0055/0059
UNCLASSIFIED

2/2 030

CIRC ACCESSION NO--AP0054132
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--18SEP70

ABSTRACT. THE FUNCTIONAL STATE OF THE PANCREAS WAS STUDIED IN PATIENTS WITH GASTRODUODENAL ULCER. THE CHARACTER OF CHANGES WAS ASSESSED BY THE LEVEL OF TRYPSIN AND ITS INHIBITOR IN THE BLOOD SERUM IN 67 PATIENTS, IN 33 OF THEM DYNAMIC INVESTIGATIONS WERE CARRIED BEFORE AND AT DIFFERENT PERIODS AFTER THE OPERATION. THE DATA DERIVED TESTIFY TO THE FACT THAT IN PATIENTS WITH PEPTIC ULCER THERE IS ALSO SEEN A SIMULTANEOUS RISE OF THE INCRETORY ACTIVITY OF THE PANCREAS, APPARENTLY, AS THE RESULT OF NEUROREFLEX DISTURBANCES. CHANGES IN THE PANCREAS ARE, EVIDENTLY, THE CAUSE OF A NUMBER OF COMPLICATIONS OCCURRING IN THE IMMEDIATE AND REMOTE POSTOPERATIVE PERIODS. THIS SHOULD BE TAKEN INTO CONSIDERATION WHEN CHOOSING THE OPERATIVE TECHNIQUE.

UNCLASSIFIED

1/2 019
TITLE--THE VALUE OF VAGOTOMY IN SURGERY OF ULCEROUS DISEASE OF THE STOMACH
AND DUODENUM -U-
AUTHOR--(02)-SAVELYEV, V.S., UMBRUMYANTS, O.A.
COUNTRY OF INFO--USSR
SOURCE--VESTNIK KHIRURGII IMENI I. I. GREKOVA, 1970, VOL 104, NR 4, PP
80-85
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--CRANIAL NERVE, SURGERY, DUODENUM, LESION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1988/0037
CIRC ACCESSION NO--AP0105136
STEP NO--UR/0589/70/104/004/0080/0085
UNCLASSIFIED

2/2 019
CIRC ACCESSION NO--AP0105136 UNCLASSIFIED
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN THE PAPER SOME ASPECTS OF
SURGICAL TREATMENT OF ULCEROUS DISEASE OF THE STOMACH AND DUODENUM, AND
ESPECIALLY THE POSSIBILITIES OF USING VAGOTOMY TO THIS END ARE BEING
CONSIDERED. IT IS BELIEVED TO BE MORE RATIONAL TO USE VAGOTOMY AS AN
ACCESSORY METHOD OF TREATMENT. A NEW TECHNIC OF SELECTIVE VAGOTOMY
PROVIDING PRESERVATION OF CARDIAC BRANCHES OF BOTH VAGUS NERVES WAS
ELABORATED. THE NECESSITY OF REMOVING ULCEROUS BED UNDERLIES THE
SELECTION OF THE BASIC TYPE OF SURGICAL PROCEDURE ON THE STOMACH.
ECONOMIC GASTRECTOMY AND MORE RARE PYLOROPLASTY ARE FELT TO BE MOST
ADVANTAGEOUS IN THIS RESPECT. ACCORDING TO THESE PRINCIPLES WITHIN THE
RECENT YEAR 55 SELECTIVE VAGOTOMIES HAVE BEEN PERFORMED (73 BAGOTOMIES
BEING ACCOMPLISHED PREVIOUSLY), IN 42 OF THESE CASES IN COMBINATION WITH
ECONOMIC GASTRIC RESECTION AND IN 3 CASES IN COMBINATION WITH
PYLOROPLASTY. THE ANALYSIS OF IMMEDIATE RESULTS HAS EVIDENCED THE
VALIDITY OF DELINEATED WAYS OF COMBATING AGAINST PATHOPHYSIOLOGICAL
DISTURBANCES, DEVELOPED AFTER BILATERAL TRUNK VAGOTOMIES AND ROUTINE
GASTRIC RESECTIONS.

PROCESSING DATE--16OCT70

UNCLASSIFIED

USSR

UDC 621.311.016.352.001.24:681.3

AVRAMENKO, V. N., UMED'YAN, V. V., TSUKERNIK, L. V.

"Study of Programs for Calculating Dynamic Stability and the Electromechanical Transmission Process of Power Systems"

Vsb. Probl. tekhn. elektrodinamiki (Problems of Technical Electrodynamics -- collection of works), vyp. 25, Kiev, Naukova Dumka Press, 1970, pp 76-83 (from RZh-Elektrotehnika i Energetika, No 4, Apr 71, Abstract No 4 Ye212)

Translation: A program for calculating the synchronous dynamic stability in the first cycles of variation of relative angles and a program for more precisely defined calculation of the electromechanical transmission process in complex power systems on the Ural-2 digital computer are described. The maximum possible volume of problems solved by these programs and the time required for their solution are indicated. There are 2 tables and a 6-entry bibliography. [Electrodynamics Institute of the Ukrainian SSR Academy of Sciences].

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USSR

UMED'YAN, V. V.

UDC 621.311.018.782.3.001.24

"Calculation of Steady State Conditions in a Small Time Interval with Numerical Integration of the Differential Equations of Electromechanical Transient Processes of Power Systems"

V sb. Probl. tekhn. elektrodinamiki (Problems of Technical Electrodynamics -- collection of works), vyp. 25, Kiev, Naukova Dumka Press, 1970, pp 82-85 (from RZh-Elektrotekhnika i Energetika, No 4, Apr 71, Abstract No 4 Ye214)

Translation: The possibility of using the method of optimal exclusion of units for calculation of steady state conditions in a small time interval with numerical integration of the differential equations of electromechanical transition processes is investigated. During the calculations the natural and mutual resistances between the units are not considered. The bibliography has 6 entries.

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68C 363.171.027
AZIMOV, S. A., MYALKOVSKIY, V. M., NURITDINOV, Kh., RASULKULOV, M. S.,
ABDULLAYEV, A. M., BEYSENBAYEV, R. U., GAVRILIN, Ye. V., TALIFOV, D. A.,
MULLAZHONOV, E. Zh., TILLAYEV, T., RAKHMANOV, Zh., UMEROV, R.,
ULIMAYEVA, F. A., KHEN, E., YULDASHBAYEV, T. S., Institute of Nuclear
Physics of the Academy of Sciences Uzbek SSR

"Study of the Characteristics of High-Energy Interactions of Pions and
Nucleons"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, Vol. 36,
No. 8, Aug 72, pp 1626-1631

Abstract: Experimental data obtained at the Kum-Bel' High-Altitude
Station of the Physicotechnical Institute of the Academy of Sciences
Uzbek SSR are reported. The station is 3200 m above sea level. The
setup contains three series of wide-gap spark chambers with effective
areas of 2 m² placed above and below the target. The Cerenkov spectro-
meter with total absorption and an ionization calorimeter with an area of
10 m² were used to measure the primary energy E_0 . Up to the present time
experimental data obtained over 630 hours of operation of the device have
been processed, with a high-voltage pulse being supplied to the electrodes of
the spark chambers. Showers with an energy of >200 Gev generated in the target
were selected for analysis. The following ratio was obtained for the number
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AZIMOV, S. A., et al., Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya,
Vol 36, No 8, Aug 72, pp 1626-1631

of primary charged N_c and neutral N_n particles: $N_c/N_n = 2.3 \pm 0.3$;
this shows that the proportion of charged particles is ~34% of all nuclear
active particles, thus making it possible to study pion-nuclear collisions
by comparing the characteristics of the interaction of charged and neutral
primary particles. A weak functional dependence between the inelasticity
coefficient $\langle K_{\pi\pi} \rangle$ and the atomic number of the target nucleus and a strong
functional dependence between this coefficient and the nature of the
primary particles were obtained for interactions of hadron with $E_0 > 200$
Gev. $\langle n_s \rangle$ is almost a logarithmic function of E_0 . The average multipli-
city in the interaction of pions with neutrons in paraffin is identical
within the experimental limit. A considerable azimuthal effect was ob-
served for the angular distribution of secondary particles. The azimuthal
effect has its greatest value for showers with $n_g = 8-15$, or a multipli-
city close to average.

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UDC 539.171.017

USSR

ABDULLAYEV, A. M., AZIMOV, S. A., BEYSEMBAYEV, R. U., BELITSKIY, M. T.,
MULLIZHANOV, E. ZH., MYALKOVSKIY, V. M., TALIPOV, T. A., TILLAYEV, T.,
UMEROV, R., KHEN, E., and YULDASHBAYEV, T. S.

"Study of Characteristics of Inelastic Interactions of Cosmic-Ray Particles
in the 10^{11} to 10^{12} -ev Energy Range"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, Vol 35, No 10,
Oct 71, pp 2065-2068

Abstract: Experiments that were performed at the high-altitude test station
(3,200 m.) at Kum-Bel' in Uzbekistan are described. The purpose of the exper-
iments was to investigate the angle of arrival and the energy characteristics
of interactions of pions and nucleons with light and heavy nuclei at 2×10^{11}
to 2×10^{12} ev and the mechanism of generating muons at energies above 2×10^{12}
ev. Equipment consisted of spark chambers, located above and below the target
(paraffin wax, carbon, and iron), a Čerenkov spectrometer of full absorption,
and an ionization calorimeter. This complex method of measurements was found
convenient for use in various modes of operation. A detailed description of
various parts of the installation and their disposition is given in the paper.

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SSR

ABULLAYEV, A. M., et al., Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, Vol 35, No 10, Oct 71, pp 2065-2068

Joint operation of ionizing calorimeters and spark chambers is normally difficult because of the need for high voltage on the calorimeter electrodes, combined with the time lag of the input pulse from the spark chambers, amounting to over 20 microseconds. This difficulty was avoided in the present experiments by storing pulses in memory cells, with the subsequent input of a high-voltage pulse of about 120 kv. Operation was controlled by a master-pulse, prior to which all parts of the equipment were kept inoperative.

Results of 200 hours of the joint operation of a Čerenkov spectrometer and ionizing calorimeter, with graphite used as the target, have been processed so far. For analysis, showers with energy above 1.5×10^{11} ev were selected, 130 of them having been observed. The ratio of charged to neutral nucleons were determined and, from it, the fraction of charged pions of the total nucleus-active stream of particles. The inelastic coefficient for the formation of π^0 -mesons was computed from the experiments related to the interaction of neutral particles with nuclei of graphite.

It is concluded that the combination of ionizing calorimeter with Čerenkov spectrometer of full absorption for the simultaneous determination of energy of primary particles made it possible to determine the fraction of

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ABULLAYEV, A. M., et al., Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya,
Vol. 35, No 10, Oct 71, pp 2065-2068

energy supplied by the ionizing particles $\tilde{\eta}$, since a Čerenkov spectrometer
measures only the energy emitted by relativistic particles. It was found that
for the mean energy of primary particles of 350 Gev the energy part lost on
nuclear fissions in the spectrometer, with CCl_4 as the light emitter, is $\tilde{\eta} =$
0.25,

CSO: 1862 -W

- END -

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1/2 015 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--AQUEOUS SYSTEMS OF SODIUM L GLUTAMATE, IRON II CHLORIDE, AND
MANGANESE CHLORIDE -U-
AUTHOR-(04)-UMETALIYEVA, S.K., BAKASOVA, Z.B., POTEKMO, L.I., DRUZHININ,
I.G.
COUNTRY OF INFO--USSR *U*
SOURCE--ZH. NEORG. KHIM. 1970, 15(3), 801-5
DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--REFRACTIVE INDEX, ORGANOSODIUM COMPOUND, IRON COMPOUND,
MANGANESE COMPOUND, CHLORIDE, SOLUBILITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3007/1147 STEP NO--UR/0078/70/015/003/0801/0805

CIRC ACCESSION NO--AP0136567
UNCLASSIFIED

2/2 015

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0136567

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. REACTION OF NA L GLUTAMATE (I) WITH FECL SUB2 AND MNCL SUB2 GIVES FE AND MN L GLUTAMATES (II AND III, RESP.). II AND III ARE INCONGRUENTLY SOL. IN WATER, THEIR SOLY. IS HIGHER THAN THAT OF THE PARENT ACID. REFRACTIVE INDEXES, N SUBALPHA AND N SUBALPHA, OF II ARE 1.99 AND 1.960 AND OF III ARE 1.980 AND 1.953, RESP. SOLY. ISOTHERMS OF I-FECL SUB2-H SUB2 O AND I-MNCL SUB2-H SUB2 O AT 25DEGREES ARE CONSTRUCTED. COMPS. OF EQUIL. SOLNS. OF THE SYSTEMS ARE TABULATED.

UNCLASSIFIED

UMETSKAYA, M.N.

Biochemistry

UNCLASSIFIED

CO. SECURED RECORD

SECTION 11

PC-89

June 71

10

Name: Institute of Evolutionary Physiology and Biochemistry Lenin
I. N. Sechenov (1913), Leningrad

Description:

(U) During this quarterly reporting period, 14 new articles were located from the Institute of Evolutionary Physiology and Biochemistry Lenin I. N. Sechenov (1913). On the basis of these articles, it was possible to associate ten new persons with the Institute. Given below is a list of these persons, the subjects of the articles and the dates:

<u>Zigorenko, Ya. Ya.</u>	antitoxins	1970 (3)
<u>Fritz, L.</u>	phospholipids	1969 (4)
<u>Gorkunov, D. M.</u>	digestion	1970 (5)
<u>Lepina, A. V.</u>	muscle physiology	1970 (6)
<u>Hammer, P.</u>	phospholipids	1969 (7)
<u>Plavina, I. I.</u>	spectrophotometer	1970 (7)
<u>Ponomareva, L. F.</u>	phospholipids	1969 (4)
<u>Shkolnikov, S. A.</u>	nucleotides	1970 (8)
<u>Serebrennikova, T. P.</u>	muscle physiology	1969 (9)
<u>Metelova, M. N.</u>	cholesterols	1970 (10, 11)

Five of the articles were coauthored by persons already identified with the Institute. These articles dealt with nerve physiology (12), muscle physiology (13) and enzyme activity (14-16).

(U) A large number of persons have been identified with the Institute during the preceding quarterly reporting periods. To provide a ready source of reference, given below is a list of all the IEPB staff members identified to the present time.

USSR

UMIDOVA, Z. I., Corresponding Member, Academy of Medical Sciences USSR,
and YANBAYEVA, Kh. I., Doctor of Medical Sciences, Chair of Hospital
Therapy, Tashkent Medical Institute

"Hot-Climate Cardiology"

Tashkent, Meditsinskiy Zhurnal Uzbekistana, No 10, Oct 70, pp 34-39

Abstract: Work conducted in this field in Uzbekistan is reviewed. The significance of heart and cardiovascular diseases has been recognized, and prophylactic measures have been instituted on a government level. The relationships between heart disease and the social, physical, and biological environment have been studied by Soviet cardiologists. Difficulties were encountered in the choice of proper population samples from various parts of the Soviet Union for these studies. In the first stage of the investigation, arterial hypertension, coronary arteriosclerosis and myocardial infarct, and rheumatic fever were studied for many years by researchers in Uzbekistan. Statistical analysis of the data collected indicated widespread cardiovascular diseases in that region, but with a somewhat lesser frequency than in regions of a more moderate climate. A
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USSR

UMIDOVA, Z. I., and YANBAYEVA, Kh. I., Meditsinskiy Zhurnal Uzbekistana,
No 10, Oct 70, pp 34-39

study of the epidemiology of ischemic diseases was more difficult. It was found that the native population tends to have ischemic heart disease less frequently than the non-native population, and the disease arises 10 years later in individuals. Comparative studies between rural and urban populations showed that arterial hypertension has a higher frequency in the urban population. The blood cholesterol level was found to be higher in persons in intellectual occupations requiring little physical exertion. Blood cholesterol level, considered to be an indicator of disturbances in lipid and protein metabolism, is frequently independent of the food intake. The less frequent occurrence of heart disease in the native population has nonetheless been attributed to vegetable fats in the food of the people. The climate has a profound effect on the wellbeing of both healthy and sick people, particularly when adaptation mechanisms are impaired. Cooperation of doctors and other scientists is required in studying various climatic and geographic effects. An increase in the number of heart attacks was found in the fall and winter, blood circulation was poorer, and rheumatic fever was aggravated in many cases. The
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USSR

UMIDOVA, Z. I., and YANBAYEVA, Kh. I., Meditsinskiy Zhurnal Uzbekistana,
No 10, Oct 70, pp 34-39

findings indicate that the long, dry, sunny period in summer, the availability of fruits and vegetables (natural sources of vitamin C and potassium salts), and the adaptability of the body affect cardiovascular patients favorably and that the network of cardiovascular sanatoria in Uzbekistan should therefore be enlarged.

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1/2 009 UNCLASSIFIED PROCESSING DATE--30OCT71
TITLE--INTENSE PURIFICATION OF TETRABUTYL TIN BY A FRACTIONAL DISTILLATION
METHOD --U-
AUTHOR--(03)--DEVYATYKH, G.G., UMILIN, V.A., TSINOVDOY, YU.N.
COUNTRY OF INFO--USSR
SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, [3], 541-6
DATE PUBLISHED--70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--ORGANOTIN COMPOUND, CHEMICAL PURITY, FRACTIONAL DISTILLATION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--2000/0739 STEP NO--UR/0062/70/000/003/0541/0546
CIRC ACCESSION NO--AP0124409
UNCLASSIFIED

2/2 009

CIRC ACCESSION NO--AP0124409

UNCLASSIFIED

PROCESSING DATE--30OCT7

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THE CIRCULATING TYPE OF EBULLIOMETER WAS USED TO RECTIFY CRUDE BU SUB4 SN AND TO EVALUATE THE SEPN. COEFFS. OF THIS SUBSTANCE FROM BU SUB3 SNCL. THE BEST METHOD OF PURIFICATION IS RECTIFICATION IN HIGH VACUUM, WHICH MADE POSSIBLE PRODUCT PURITY OF LESS THAN 5 TIMES 10 PRIMENEGATIVE4 HOLE PERCENT IMPURITIES. THE VALUES OF SEPN. COEFFS. WERE TABULATED VS. THE THERMODYNAMIC ACTIVITY COEFFS. OF COMPONENTS IN THE CRUDE MATERIAL. FOR BEST RESULTS THE HIGH BOILING ADMIXTS. WERE REMOVED FIRST, THEN THE LOW BOILING IMPURITIES WERE SEPD. THE DESIGN OF THE DISTN. COLUMN WAS SHOWN DIAGRAMMATICALLY.

FACILITY: LAB. STABIL. POLIM., GORKI, USSR.

UNCLASSIFIED

1/2 009 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--USE OF COUNTERCURRENT CRYSTALLIZATION TO PURIFY VINYL ACETATE -U-
AUTHOR--(C3)-DEVYATYKH, G.G., UMILIN, V.A., ISAYCHEVA, L.V.
COUNTRY OF INFO--USSR
SOURCE--ZH. PRIKL. KHIM. LENINGRAD 1970, 43(4), 936-8
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY, MATERIALS
TOPIC TAGS--CRYSTALLIZATION, CHEMICAL PURIFICATION, VINYL COMPOUND,
ACETATE, PARTITION COEFFICIENT, ACETIC ACID
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1997/0726 STEP NO--UR/0080/70/043/004/0936/0938
CIRC ACCESSION NO--AP0119633
UNCLASSIFIED

2/2 009
CIRC ACCESSION NO--AP0119633 UNCLASSIFIED
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PARTITION COEFFS. (K) OF ACOH
OR WATER BETWEEN LIQ. AND SOLID PHASES OF VINYL ACETATE (I) ARE 1.30 AND
1.47 RESP. AND THESE COMPS. MAY BE EFFECTIVELY REMOVED FROM I BY
COUNTERCURRENT CRYSTN. (H. SCHILDKNECHT, ET AL., 1961). K OF ACETONE
AND ACH ARE 1. THE LAB. APP. USED TO OBTAIN I CONTG. SMALLER THAN OR
EQUALS TO 1 TIMES 10 PRIME NEGATIVE4 MOEL PERCENT WATER AND SMALLER THAN
OR EQUALS TO 1 TIMES 10 PRIME NEGATIVE3 MOLE PERCENT ACOH IS DESCRIBED.

PROCESSING DATE--23OCT70

UNCLASSIFIED

1/2 007
TITLE--PURIFICATION OF VINYL ACETATE BY FRACTIONAL DISTILLATION AT LOW
PRESSURE -U-
AUTHOR--(02)--DEVYATYKH, G.G., UMILIN, V.A.
COUNTRY OF INFO--USSR
SOURCE--ZH. PRIKL. KHIM. (LENINGRAD) 1970 43(3) 578-81
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--DISTILLATION, VINYL COMPOUND, ACETATE, CHEMICAL SEPARATION,
ACETIC ACID, ACETONE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1992/0338
CIRC ACCESSION NO--AP0111532
STEP NO--UR/0080/70/043/003/057R/0581
UNCLASSIFIED

2/2 007

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0111532

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. CH SUB2:CHOAC WAS DISTD. AT 100 PLUS OR MINUS 5 MM AND 24DEGREES IN A 2 M 11 MM INNER DIAM. COLUMN FILLED WITH GLASS FENSKE RINGS (DIAM. 4 MM). THE SEPN. FACTORS OF ACH, ACOH, AND ME SUB2 CO IN CH SUB2:CHOAC AT 24DEGREES ARE 2.45, 4.30, AND 1.80, RESP. THE RELATIVE VOLATILITY OF ACH IS INFLUENCED BY THE PRESENCE OF ACOH.

UNCLASSIFIED

USSR

UDC 546.26:546.161-32

OPALOVSKIY, A. A., NAZAROV, A. S., and UMTINSKIY, A. A., Institute of Inorganic Chemistry, Siberian Branch Acad. Sc. USSR, Novosibirsk

"Laminar Compounds of Graphite With Hydrogen Fluoride"

Moscow, Zhurnal Neorganicheskoy Khimii, Vol 17, No 5, May 72, pp 1214-1216

Abstract: A desorption isobar of the system graphite-HF has been reported in temperature range 0-1150°C and pressure of HF at 4.23 mm Hg. The ability to form compounds of graphite with inorganic fluorides was thus shown; the composition of the products was C_nHF where $n = 4, 5, 6, 7, \text{ or } 8$. In analogy with other graphite compounds with inorganic materials it has been assumed that the graphite-HF compounds are of the laminar type.

1/1

USSR

UDNOV, M. P.

"Microencapsulated Pesticides"

Moscow, Zashchita Rasteniy, No 9, 1970, p 50

Abstract: A symposium was held in Moscow on the microencapsulation problem, organized jointly by the State Committee of the Soviet of Ministers USSR, NCR - USA, and Eurand-Microencapsulation - Italy. Of greatest interest to the agriculture workers was the report of Zh. Bakan (NCR) on microencapsulation of pesticides. A summary of this report is given covering the principle used in encapsulation, the advantages over the standard way of application of pesticides, the economy and toxicity.

1/1

USSR

UDC 669.184.266:14.018.2

KACHUR, B.K., KUKURUZNYAK, I.S., NIKIFOROV, B.V., TARAPUROV, N.P., ~~URTOV, V.D.~~
POGORZELYY, V.P., GALATON, YE.G., KHARCHENKO, B.V., and PLOKHIN, V.A.
(Ukrainian Scientific Research Institute of Metals, Krivoy Rog Metallurgical Plant)

"Smelting of Low-Alloy Steel in a 130-ton Converter"

Moscow, Metallurg, No 9, Sep 71, pp 14-16

Abstract: A description is given of the technology of smelting low-alloy steels (OST-1, OST-2, 25G2C, and 35CC) in 130-ton oxygen converters at the Krivoy Rog Metallurgical Plant. Pig iron (881 kg per ton of steel) containing 0.6-0.9% Mn, 0.4-0.8% Si, not more than 0.06% S, and not more than 0.1% P, is poured into the converter at 1250-1350°C. Fresh burnt lime (65 kg), limestone (15-20 kg), and fluorspar (2-5 kg) per ton of steel were used as slag forming materials. The use of liquid alloying elements (75% FeMn, 65% FeSi and SiMn) in the ladle makes it possible to reduce the expenditure of ferroalloys, to improve the macro- and microstructure of the metal, and to minimize the content of nonmetallic inclusions. The steel obtained satisfies the requirements of GOST 5058-65.

1/1

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CRYSTALS & SEMICONDUCTORS

USSR

UDC 669.184.144.66

YUGOV, P. I., UMNNOV, V. D., and PLOKHIKH, V. A.

"Study of the Mechanism of Slag Formation in an Oxygen Converter"

Proizvodstvo Chernykh Metallov (Production of Ferrous Metals -- Collection of Works), No 75, Metallurgiya Press, 1970, pp 116-122

Translation: Studies are performed in a 130 T oxygen converter on the mechanism of slag formation during blowing of cast iron, %: 4.2 C, 0.97 Mn, 0.67 Si, 0.041 S, 0.056 P. The melts were cooled with Fe ore. The slag forming materials used were lime ($\text{CaO} = 85-87\%$) and feldspar. Blowing was with oxygen of 98.6% purity at a feed rate of $2.8 \text{ m}^3/(\text{min} \cdot \text{T})$. The principal technological factors determining the nature and rate of dissolution of lime in the slag are the intensity of oxidation of silicon and manganese at the beginning of blowing; the content of MnO and FeO in the primary slag; the relationship of MnO and SiO_2 in the slag; the use of complex materials (fluxed sinter, Fe-ore briquettes, Mn ore, return slag) containing pre-pared components of the primary slag; the distribution of the additives of slag forming materials during blowing, taking into account the nature of oxidation of elements in the cast iron; the quality and physical state of the lime used. 3 figures; 1 tables.

1/1

1/2 030
TITLE--INDICES OF THE QUALITY OF MEDICAL SERVICE TO PATIENTS WITH DERMATIC
AND VENEREAL DISEASE -U-
AUTHOR--(02)--TURANOV, N.N., UMNOVA, I.I.
COUNTRY OF INFO--USSR
SOURCE--VESTNIK DERMATOLOGII I VENEROLOGII, 1970, NR 3, PP 62-67
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--SKIN DISEASE, VENEREAL DISEASE, STATISTICS, MEDICAL
EXAMINATION, OBSTETRICS, GYNECOLOGY, PUBLIC HEALTH
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1985/1476
CIRC ACCESSION NO--AP0101562
STEP NO--UR/0206/70/000/003/0062/0067
UNCLASSIFIED

2/2 030

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0101562

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. A PROJECT OF STATISTICAL INDICES FOR EVALUATION OF THE QUALITY OF MEDICAL SERVICE TO PATIENTS WITH DERMATIC AND VENEREAL DISEASES IS PRESENTED: (1) GROUNDS FOR OUT PATIENT AND HOSPITAL SERVICE FOR PATIENTS REQUIRING DERMATO VENEREAL INSTITUTIONS IN CONTROL OF DERMATIC AND VENEREAL DISEASES; (2) CHARACTERISTICS OF THE EFFECTIVENESS OF PROPHYLACTIC EXAMINATIONS FOR DETECTION OF PATIENTS WITH VENEREAL AND DERMATIC DISEASES; (3) INDICES OF THE QUALITY OF MEDICAL SERVICE FOR PATIENTS WITH VENEREAL DISEASES FOR OBSTETRIC GYNECOLOGICAL INSTITUTIONS, THERAPEUTIC AND NEUROLOGICAL HOSPITALS; (4) INDICES CHARACTERIZING THE ACTIVITY OF LABORATORY SERVICE IN THE DIAGNOSIS OF DERMATIC AND VENEREAL DISEASES.

UNCLASSIFIED

Organ and Tissue Transplantation

USSR

UDC 578.089.843+616.74.089.844

UMNOVA, M. M., Institute of Biophysics, Academy of Sciences USSR, Pushchino-on-
-oka

"Vascularization of Muscle Autotransplants Developing in an Irradiated Bed"

Moscow, Doklady Akademii Nauk SSSR, No 1, 1972, pp 248-250

Abstract: The irradiated (2500 r) right gastrocnemius of rats was removed and the contralateral nonirradiated muscle was put in its place. Within 24 hours of the operation the surviving superficial blood vessels of the removed muscle were assisting in the restoration of the blood supply of the transplant. On day 3 the blood vessels of the irradiated bed had grown to the site of fixation of the transplants. These vessels evidently formed anastomoses connecting the bloodstream of the transplantation bed to the superficial vessels of the transplant, thereby bringing about the initial stage of vascularization of the transplanted muscle. About 2 months later there was a completely vascularized muscle. Since the process is slower than in a transplant placed in a nonirradiated bed, regeneration is delayed and different in character. Since the transplant has more connective tissue, it is smaller and less contractile. Doubling the dose of radiation (to 5000 r) slowed the development of the vascular network and reorganization of the transplant even more. Thus, the rate of

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USSR

UMNOVA, M. M., Doklady Akademii Nauk SSSR, No 1, 1972, pp 248-250

vascularization and reorganization of irradiated transplants varies with the extent of irradiation of the transplantation bed. Tissue metabolites released by the nonirradiated muscle make it possible for a nonirradiated transplant to grow in an irradiated bed.

2/2

- 24 -

USSR

UDC 621.315.592:546.19'681

KOVTONYUK, N. F., KURBATOV, L. N., NOZDRIN, V. V., ORLOV, V. S., RYABENKO, Ye. A.,
RASKIN, A. A., ROSTUNOVA, R. P., SOLOV'YEV, A. A., SEVAST'YANOV, V. G., UMNYAGIN,
A. M., SHALUMOV, B. Z., and SHAULOV, Yu. Kh.

"Some Problems of a Technological Formulation of the Process of Obtaining
Epitaxial Films of Gallium Arsenide by the Gas Phase Method"

V sb. Protsessy rosta kristallov i plenok poluprovodn. (Procedures for the
Growth of Semiconductor Crystals and Films -- Collection of Works), Novosibirsk,
1970, pp 341-350 (from RZh-Elektronika i yeye primeneniye, No 7, July 1971,
Abstract No 7B130)

Translation: The epitaxial films of GaAs obtained were produced by the gas phase
method with the use of AsH_3 , Ga, and HCl. GaAs wafers served as substrates. The
surface of a wafer was subjected to chemical--mechanical processing and etching with
 H_2SO_4 : H_2O_2 : H_2O in the ratio 3: 1: 1. Synthesis of the GaAs was conducted in a
reaction apparatus which was thoroughly scavenged by H_2 and etched by HCl at $950^\circ C$
for 30 minutes. After cooling, the Ga was loaded into the chamber. The chamber was
heated to a temperature of $850^\circ C$ for activation of the Ga surface. After reduction
of the temperature to $100-150^\circ C$, the GaAs substrate was introduced into the re-
action zone. After heating the Ga area and the GaAs area, etching of the GaS was
performed by HCl gas in a stream of AsH_3 and H_2 . The films were doped by Se.
1/2

JSSR

KOVTONYUK, N. F., et al., Protsessy rosta kristallov i plenok poluprovodn.
(Procedures for the Growth of Semiconductor Crystals and Films -- Collection
of Works), Novosibirsk, 1970, pp 341-350 (from RZh-Elektronika i yeye
primeneniye, No 7, July 1971, Abstract No 7B130)

The best specimens of film had n-type conductivity and a mobility of 4000--5000
 $\text{cm}^2/\text{v. sec.}$ Films doped by Se had a concentration of $5 \cdot 10^{17}$ -- $5 \cdot 10^{18}$ at/ cm^3 and
a mobility of 2000 $\text{cm}^2/\text{v. sec.}$ 8 ref. V.B.

2/2

- 56 -

umova, V. M.

STRUCTURAL RECRYSTALLIZATION OF STEELS DURING
FAST AND SLOW HEATING

UDC 669.017.3:620.186.5

G. N. Borodicheva, V. P. Drozd, A. V. Ozhigany, V. M. Schallistey,
and V. M. Umova, Institute of the Physics of Metals, U.S.S.R.
Academy of Sciences, submitted to press 1 February 1972 pages 1198-1205

The effect of small additions of elements forming carbides
hardening, tempering after hardening, and soaking at various
temperatures in the austenite region on the structural
mechanism of the recrystallization of steel during heating,
accomplished with various speeds, was investigated. It was
demonstrated that the factors indicated do not have the same
effect on the manifestation of the structural succession,
expressed in the restoration of the initial grains of
austenite after completion of the phase transformation
(1-20 per minute). In connection with this it is proposed
that these two cases of structural succession are caused
by different mechanisms of the formation of austenite.

At definite heating conditions of a preliminarily superheated and
hardened steel, the phenomenon of structural succession is observed,
which lies in the presence of a crystallographic bond of the grains of
austenite formed after completion of the phase transformation with the
initial grains of austenite, which existed before the first hardening.
Structural succession is manifested most sharply at very fast or at very
slow heating of the hardened steel: in both cases, a restoration of the initial
grains of austenite occurs with respect to magnitude and with respect to
crystallographic orientation [1-3].

Added March 1973
Metalurgy 57:5 586-11
30 March 1973

In reference [4] the assumption was expressed that the phenomenon of structural annealing is caused by the well-understood mechanism of the formation of austenite. In fact heating a diffusion-hardened mechanism of the diffusion formation of austenite. However, according to [5], for the majority of the steels investigated at the speeds of heating that can be accomplished in practice, the formation of austenite occurs by the restoration mechanism of the grain in both cases. It is of interest to analyze the effect of various factors on the appearance of the structural sequence in fast and slow heating and, if their effect is unambiguous, according to [4], we may assume that these two cases of structural sequence are caused, all the same, by various mechanisms of the formation of austenite.

In this article the effect of the chemical composition, preliminary hardening temperature, tempering after preliminary hardening, and the regime of cooling in the austenite region before preliminary hardening on the structure picture of the recrystallization in repeated heating of the hardened steel.

Industrial steels were investigated, the composition of which is indicated in the table. Some experiments were conducted on steels with an increased content of carbon. Repeated heating after preliminary hardening was accomplished at rates of 1--20 per minute (slow heating) and 200--400 per second (fast heating). Since the results of x-ray structural and metallographic methods in this case agree well [6, 7], only the metallographic method was used.

USSR

UDC 681.32.001

UMOV, V. S., NOVOKOVSKIY, Ye. M., FILATOV, A. G., and KRANKOV, Ye. S.

"A Connector for a Printed-Circuit Board"

USSR Author's Certificate No 294269, filed 17 Apr 69, published 17 Mar 71
(from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 10, Oct
71, Abstract No 10B147 P)

Translation: The invention pertains to inspection facilities, specifically to devices for checking disconnected circuits on solid-state circuit boards. There are well-known devices designed for inspection of the output contacts of circuit boards which are made in the form of metal strips arranged in a parallel row with a definite spacing about the perimeter of the board. However, such devices are cumbersome and do not allow contact with the working areas of the solid-state circuit which are located on the flat surface of the board. The purpose of this invention is to improve the operational reliability of the connector for printed-circuit boards. To this end, the contact-holders in the proposed connector are made in the form of L-shaped strips fastened on round pins, and the housing has openings which accommodate the contact elements made in the form of multiple-leaf springs. Two illustrations.

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USSR

UDC 621.357.8:669.725(088.8)

VOL'FSON, A. I., ~~UMOV, V. S.~~ POLONSKIY, E. L., MARKOVA, N. Ye.,
CHERNYSHOV, V. V., LEBEDEV, V. N.

"Method of Anodization of Beryllium and Its Alloys"

USSR Author's Certificate No 305210, Filed 5/02/70, Published 13/07/71,
(Translated from Referativnyy Zhurnal, Khimiya, No 2, 1972, Abstract No
2 L241 P from the Resume).

Translation: A method of anodization of beryllium and its alloys in an
electrolyte containing H_3BO_3 , differing in that in order to increase the
corrosion resistance of the film, ethylene glycol and ammonia are intro-
duced to the electrolyte in the following relationship (g/l): ethylene
glycol 50-150, H_3BO_3 30-160, 25% ammonia solution, ml 40-100, and the pro-
cess is conducted at $10-40^\circ$, D_c 0.2-2 a/dm².

USSR

UDC 621.3.049.75

2

NEFEDOV, V. S., YAKUNIN, V. A., BOLOTOV, G. V., KIREYEV, I. V., UMOV, V. S.,
GRISHCHENKO, G. V., VAYSBURG, A. O.

"A Method of Making Multilayered Printed-Circuit Boards"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki,
No 2, Jan 71, Author's Certificate No 290492, division H, filed 18 Dec 67,
published 22 Dec 70, pp 169-170

Translation: This Author's Certificate introduces a method of making multi-layered printed-circuit boards which is based on stacking the boards followed by interconnection of the current-conducting sections. As a distinguishing feature of the patent, the manufacturing technique is simplified and the resolving capacity of the boards is improved by connecting the outer current-conducting layers to the inner layers, and interconnecting the inner layers, the interlayer connections of the boards being made by current-conducting pins.

1/1

- 50 -

Microelectronics

USSR

UDC: 621.3.049.75

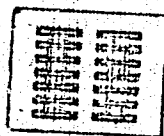
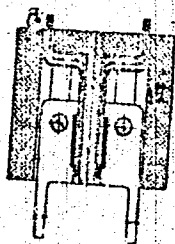
UMOV, V. S., NOVOKOVSKIY, Ye. M., FILATOV, A. G., KRANKOV, Ye. S.
"A Connector for a Printed Circuit Board"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki,
No 6, Feb 71, Author's Certificate No 294269, Division H, filed 17 Apr 69,
published 26 Jan 71, p 180

Translation: This Author's Certificate introduces a connector for a printed circuit board. The device contains a dielectric housing which accommodates contact holders with contacts between which the printed circuit board is inserted. As a distinguishing feature of the patent, the operational reliability of the connector is improved by making the contact holders in the form of L-shaped strips fastened to circular pins and fitting the housing with apertures which hold the contact elements made in the form of multiple-leaf springs.

USSR

UMOV, V. S. et al., USSR Author's Certificate No 294269



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UNCLASSIFIED

SECTION III SO: SELECTED RESEARCH RESULTS

Physics

Name: Institute of Biophysics, Pushchino
Description:

PCS-89

SEPT 71

(U) During this quarterly reporting period, 25 new articles were identified from the Institute of Biophysics, Pushchino. On the basis of these articles, it was possible to identify 32 new personalities with the Institute. These personalities, the subjects of the articles, and the dates are given below:

All biophysics/physiology

Alizova, S. A.	phosphorylation	1971 (34)
Aplakayeva, G. F.	radiation effect	1970 (35)
Artipova, D. F.	radiation effect	1971 (36)
Azhip, Ya. I.	hypoxia	1969 (37)
Bregadze, I. V.	radiation effect	1970 (38)
Bucel, Ye. P.	luminescence	1970 (39)
Dmitriyeva, T. I.	radiation effect	1970 (39)
Dmitriyeva, V. A.	blood plasma	1969 (40)
Domarova, O. P.	radiation effect	1970 (39)
Iubrov, A. P.	biochemical analysis	1971 (41)
Galova, N. A.	muscle physiology	1971 (42)
Ganesti, Ye. E.	radiation effect	1970 (35)
Tokova, N. N.	serum albumin	1971 (43)
Kanotkin, V. S.	phosphorylation	1971 (36)
Khokhlova, G. K.	muscle physiology	1971 (44)
Kislov, A. N.	salivary gland	1970 (45)
Klyagina, V. P.	oligonucleotide	1970 (46)
Korol, B. A.	radiation effect	1971 (44)
Koshaleva, G. N.	biochemical analysis	1971 (41)

UNCLASSIFIED

Kuzmina, S. V.
 Markovich, D. S.
 Medvedeva, I. F.
 Peshkova, L. V.
 Proseval, L. A.
 Rodionova, N. A.
 Shchepkin, V. N.
 Skobryev, Ye. M.
 Teverkov, V. D.
 Dmitriyeva, N. V.
 Vilenchik, M. M.
 Zamyatin, A. A.
 Dubrov and Koshelova (41)

tissue culture
 lactate dehydrogenase
 radiation effect
 phosphorylation
 antibiotic
 mitochondrion
 phosphorylation
 radiation/vibration
 radiation effect
 blood plasma
 lactate dehydrogenase
 radiation effect
 muscle physiology

1970 (47)
 1971 (48)
 1971 (44)
 1971 (49)
 1970 (50)
 1971 (51)
 1971 (49)
 1970 (52)
 1970 (53)
 1969 (40)
 1971 (46)
 1970 (53)
 1971 (42)

are associated with the Laboratory of Cell Biophysics
 at the Institute. Reference 32 above is of special interest since it presents
 an investigation of combined stresses, i.e., radiation and vibration. In
 addition to the above articles, five of the twenty-five (51-55) were authored
 by persons already identified with the Institute of Biophysics, Pushchino.
 Reference 55 associates the authors of the article, L. V. Stepanova, V. L.
 Misyagina, and A. N. Kuzin, with the Department of Radiobiology at the
 Institute.

000013

UDC: 621.741.4:66.046.51:669.741

3

SIDOROV, Yu. I., BAKHULEVICH, V. B., STARTSEV, V. A., MALYSIN, Yu. N.,
KAZAKOVA, I. I., ZONOV, V. Ye., and UMIKHIN, P. V., Ural Polytechnic
Institute

"Surface Alloying of Steel Castings With Boron"

UL

Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy, Chernaya Metallurgiya, No 8, 1970,
pp. 132-134

Abstract: A method of surface alloying of steel castings with boron regenerated from dehydrated borax ($\text{Na}_2\text{B}_4\text{O}_7$) in the process of filling the mold is discussed. The reducing agents are aluminum, calcium, and silicon. The mechanism of boron reduction from borax comprises two stages: a) decomposition of borax into Na_2O and B_2O_3 ; b) reduction of boron from its oxides. Data are given on changes in the free energy of boron reduction from borax. The results of a thermodynamics analysis and the study of kinetics regularities indicate silicon, calcium and aluminum to be the most efficient reducing agents. The method of surface alloying with boron has been tested on experimental batches of low-carbon steel and has demonstrated its applicability under industrial conditions. The boron content on the surface of the casting was 0.5 to 0.7% and at a depth of 15 mm about 0.008 to 0.009%. The wear resistance of surface-alloyed parts was found to be two to three times that of ordinary parts.

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Foundry

USSR

UDC 669.183.4.046.58

BURMASOV, S. P., KUROCHKIN, K. T., and UMRIKHIN, P. V.; Ural Polytechnical Institute

"Nitrogen-Resistant Properties of Basic Martin Slags"

Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy -- Chernaya Metallurgiya, No 9, 1970, pp 45-48

Abstract: An experimental investigation of the nitrogen permeability of slags extracted from a Martin furnace at different times in medium-carbon steel production was conducted at the laboratory of the Ural Polytechnical Institute at 1600, 1650, and 1700°C. The characteristics of the tested slags are given in a table. It was experimentally established, by evaluating the variations in nitrogen concentration in metal and slag during the liquid phase in a nitrogen atmosphere that the basic Martin slags in their entire range of compositions possess high nitrogen-resistant properties in the absence of appreciable convection. Tests were also conducted on the nitrogen solubility in slags with the purpose of considering the degree of divergence between the concentration values obtained and the equilibrium values for partial nitrogen furnace pressure in the atmosphere. The low nitrogen solubility level (0.0015%) in slags is explained

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USSR

BURMASOV, S. P., et al., Izvestiya Vysshikh Uchebnykh Zavedeniy -- Chernaya Metallurgiya, No 9, 1970, pp 45-48

by low thermodynamic stability of nitrides under oxidizing conditions. The increase in nitrogen concentration in metal due to its transfer by slag from the furnace atmosphere can attain thousandths of a percent per hour under conditions of intense mixing of contact phases in the boiling process.

2/2

1/2 017

UNCLASSIFIED

PROCESSING DATE--04DEC70

TITLE--SIMULTANEOUS REDUCTION OF MOLYBDENUM TRIOXIDE AND CHROMIC OXIDE BY
SILICON -U-

AUTHOR--(03)--KHALIKOV, R.S., UMRIKHIN, P.V., SUCHILNIKOV, S.I.

COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAVED., CHERN. MET. 1970, 13(3), 5-8

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--SMELTING FURNACE, SYNTHETIC SLAG, MOLYBDENUM OXIDE, CHROMIUM
OXIDE, SILICON, METAL REDUCTION, PHASE COMPOSITION, CHEMICAL COMPOSITION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--3005/0837

STEP NO--UR/0148/70/013/003/0005/0008

CIRC ACCESSION NO--AT0132927

UNCLASSIFIED

2/2 017

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AT0132927
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. MOO SUBO AND CR SUB2 O SUB3 WERE SMELTED WITH FE-SI (STOICHIOMETRIC RATIO) IN AN ELEC. RESISTANCE FURNACE IN A N ATM. AT 1890-1900DEGREESK. THE SYNTHETIC SLAG HAD A BASICITY OF 0.4-1.6. EQUIL. BETWEEN MOO SUB3 AND SI WAS REACHYED AFTER 30 MIN HOLDING AT 1890-1900DEGREESK. THE C HAD A DOUBLE EFFECT DURING SMELTING: IT CAN ACT AS A CARBIDE FORMING ELEMENT AND ALSO AS A REDUCTANT. WITH MOO SUB3, AN INCREASE IN C CONTENT RESULTES IN HIGHER EXTN. OF MO. WITH CR SUB2 O SUB5, AN INCREASE IN C CONCN. UP TO 0.6-0.8PERCENT RESULTED IN HIGHER CR EXTN. AT HIGHER C CONCNS., THE CR EXTN. DECREASED, PROBABLY BECAUSE OF THE FORMATION OF SIC. WITH INCREASED BASICITY OF THE SLAG, THE MO EXTN. INCREASED, WHILE EXTN. OF CR INCREASED ONLY UP TO (CR):(MO) EQUALS 0.4, WHILE AT (CR):(MO) EQUALS 0.75, THE EXTN. OF CR DECREASED SLIGHTLY. FACILITY: URAL. POLITEKH. INST., SVERDLOVSK, USSR.

UNCLASSIFIED

USSR

u
UTC: 621.741.3

SIDOROV, YU. I., UMRIKHIN, P. V., STARTSEV, V. A., and KAZAKOVA, I. I.

"Specifics of Physical-Chemical Processes During Surface Alloying of Steel Castings with Vanadium"

Izv. VUZ, Chernaya Metallurgiya, No 6, 1970, pp 125-127

Abstract: The physical and chemical processes occurring during surface alloying of steel castings with vanadium, reduced from vanadium-containing converter slag by silicon, calcium, and aluminum, were investigated. The slag was included as part of a paint applied to the surface of the casting mold. Production tests showed that the vanadium can penetrate 40 mm into the casting and can increase wear resistance by 1.5 times. One illustration; two tables; three biblio. refs.

1/1

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USSR

BULYGIN, V. P., UMRUKHIN, Ye. A.

UDC: 51.6

"Behavior of an Automaton in a Situation of Probabilistic Selection as a Sequential Procedure of Distinguishing Two Complex Hypotheses"

V sb. Upr. i inform. protsessy v zhivoy prirode (Control and Information Processes in Animate Nature--collection of works), Moscow, "Nauka", 1971, pp 128-131 (from RZh-Kibernetika, No 1, Jan 72, Abstract No 1V652)

[No abstract]

1/1

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USSR

UDC 576.858.25.083.35

REZEPOVA, A. I., KUZ'MINA, S. V., KULIKOVA, K. S., and UNANOV, S. S., Moscow
Scientific Research Institute of Virus Preparations, and Institute of
Biophysics, Academy of Sciences USSR

"Propagation of Some Arboviruses in New Transplanted Lines of Mouse Fibro-
blasts"

Moscow, Voprosy Virusologii, No 6, Nov/Dec 71, pp 704-707

Abstract: Embryonic fibroblasts of mice constitute a useful culture medium for hemagglutinating arboviruses. Though no formation of hemagglutinins occurs in the parent cells, in successive fibroblast lines hemagglutinins are produced in ample amounts by the following encephalomyelitis arbovirus strains: WEE, Sindbis, Semliki Forest, and Chikungunya (group A), and tickborne, Japanese, West Nile, St. Louis, Ntaya, Bun'yamvera, and Omsk hemorrhagic fever (group B). These hemagglutinin preparations can be used to test the toxicity of the various arbovirus strains and to identify the arbovirus antibodies which were recently detected in human serum throughout the USSR.

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- 37 -

172 017
UNCLASSIFIED
TITLE--MODELING OF BIOTIN BIOSYNTHESIS. 2. INTRODUCTION OF OXYGEN AND
SULFUR ATOMS INTO MOLECULES OF 2-IMIDAZOLINONE DERIVATIVES -U-
AUTHOR--(05)-RODIONOVA, N.A., UNANYAN, M.P., KONDRATYEVA, G.V., ZAVYALOV,
S.I., FILIPPOV, V.V.
COUNTRY OF INFO--USSR
PROCESSING DATE--13NOV70
SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (3) 660-5
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES, CHEMISTRY
TOPIC TAGS--IMIDAZOLE, KETONE, ORGANIC SULFUR, BIOSYNTHESIS, GLYCINE,
SERINE, VITAMIN
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1999/1764
CIRC ACCESSION NO--AP0123563
STEP NO--UR/0062/70/GG0/003/0660/0665
UNCLASSIFIED

2/2 017
 CIRC ACCESSION NO--AP0123563 UNCLASSIFIED PROCESSING DATE--13NOV70
 ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. HEATING 3.5 G 4, METHYL, 2, IMIDAZOLINONE WITH 1.1 G PARA FORMALDEHYDE AND 1-2 DROPS ET SUB3 N IN MEQH 3 HR GAVE 4(5), METHYL, 5(4), HYDROXYMETHYL, 2, IMIDAZOLINONE, DECOMPD. LARGER THAN 300DEGREES. SIMILAR REACTION WITH PARA FORMALDEHYDE IN THE PRESENCE OF PIPERIDINE IN MEQH 4 HR GAVE 58PERCENT 4(5), METHYL, 5(4), PIPERIDINOMETHYL, 2, IMIDAZOLINONE, DECOMPD. SMALLER THAN 290DEGREES, ALSO PREPD. FROM 1,3, DIACETYL, 4(5), METHYL, 5(4), BROMOMETHYL, 2, IMIDAZOLINONE AND PIPERIDINE. HYDROXYDEHYDRODETHIOBIOTIN AND PARA FORMALDEHYDE REFLUXED IN ETOH 3 HR GAVE HYDROXYDEHYDRODETHIOBIOTIN, DECOMPD. LARGER THAN 280DEGREES. 1,3, DIACETYL, 4(5), BROMOMETHYL, 2, IMIDAZOLINONE AND ACSK IN ME SUB2 CO OVERNIGHT GAVE 36PERCENT 1,3, DIACETYL, 4(5), (ACETYLTHIOMETHYL), 2, IMIDAZOLINONE, M. 49-51DEGREES. SIMILARLY WAS PREPD. THE 4(5), ME ANALOG, M. 67-80DEGREES AND 1,3, DIACETYL, 4, 5, BIS(ACETYLTHIOMETHYL), 2, IMIDAZOLINONE, M. 106-7DEGREES, AND 1,3, DIACETYL, 4(5), (ACETYLTHIOMETHYL), 5(4), DELTA, CARBETHOXYVALEROYL, 2, IMIDAZOLINONE, M. 109-10DEGREES, WHICH WITH N, BROMOSUCCINIMIDE IN REFLUXING CCL SUB4 GAVE IN 1 HR AN OIL, WHICH TREATED WITH ACSK, THEN WITH AQ. KMNO SUB4, GAVE AFTER FINAL HEATING 3 HR WITH AQ. HCL 1,3, DIACETYL, 4(5), (ACETYLTHIOMETHYL), 5(4), (CARBETHOXYAMYL), 2, IMIDAZOLINONE, OIL. A POSSIBLE SCHEME OF BIOGENESIS OF BIOTIN FROM SERINE, GLYCINE AND DETHIOBIOTIN WAS DISCUSSED. FACILITY: INST. ORG. KHIM. IN. ZELINSKOGO, MOSCOW, USSR.

UNCLASSIFIED

USSR

KAMINIR, L. B., KREYNDLIN, E. YA., UNDRITSOV, I. M.

UDC 543.544:535.243.082

"Densitometer for Chromatographic Analysis of Minute

Amounts of Substances"

Dokl. Vses. soveshch. Optich. i titrometrich. analizatory zhidk. sred, 1971,
Ch I (Reports of the All-Union Conference on Optical and Titrometric Analyzers
of Liquid Media, 1971, Part 2), Tbilisi, 1971, pp 260-266 (from RZh-Metrologiya
i Izmeritel'naya Tekhnika, No 3, Mar 72, Abstract No 3.32.1122)

Translation: When studying the structure of substances using small samples by chromatographic methods, flow densitometers can be successfully used as the detectors. Decreasing the column size and using small analyzable samples noticeably increase the chromatographic separation rate (0.5-3 hours instead of 10-40 hours) and permit the components to be analyzed on a subnanomolar level (10^{-7} - 10^{-8} grams); that is, the sensitivity of the method approaches the sensitivity of radio isotopic analyses and permits clear recording of the peak eluted with small volumetric intervals. The functional schematic of the newly developed densitometer equipped with the EPP-09-51 potentiometer and used as a detector is presented. The magnitude of the measurable optical density is proportional to the light absorption in the specimen with an error not exceeding 6.5%. It is pointed out that in order to determine the amount of substance with respect to area of the curve on the chromatogram, such errors are admissible. There are 2 illustrations and a 6-entry bibliography.

1/1

1/2 026
TITLE--DEVELOPMENT OF A CONDITIONED REACTION OF FEAR BY STIMULATION OF THE
HIPPOCAMPUS -U- UNCLASSIFIED
AUTHOR--UNGIADZE, A.A. PROCESSING DATE--16OCT70
COUNTRY OF INFO--USSR
SOURCE--AKADEMIIA NAUK GRUZINSKOI SSR, SOOBSHCHENIIA, VOL. 57, JAN. 1970,
P. 169-172
DATE PUBLISHED--JAN70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--CONDITIONED REFLEX, BRAIN, ELECTRIC DISCHARGE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1997/0211
CIRC ACCESSION NO--AP0119207
STEP NO--UR/0251/70/057/000/0169/0172
UNCLASSIFIED

2/2 026

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO---AP0119207

ABSTRACT/EXTRACT---(U) GP-0- ABSTRACT. DISCUSSION OF EXPERIMENTS PERFORMED WITH CATS WITH ELECTRODES PERMANENTLY IMPLANTED INTO THE LATERAL HYPOTHALAMUS, THE VENTROMEDIAL NUCLEUS HYPOTHALAMICUS, AND CERTAIN OTHER STRUCTURES. THE RESULTS INDICATE THAT BY DIRECT ELECTRIC STIMULATION OF THE STRUCTURE OF THE HIPPOCAMPUS, IT IS POSSIBLE TO DEVELOP A CONDITIONED REFLEX TYPE EMOTIONAL REACTION OF FEAR. THE RECORDED SYNCHRONIZED ACTIVITY MAY BE ATTRIBUTED TO THE ACTION OF A COMPLEX OF RETICULAR FORMATIONS OF THE MIDBRAIN ON THE HIPPOCAMPUS STRUCTURE.

FACILITY: AKADEMIIA NAUK GRUZINSKOI SSR, INSTITUT FIZIOLOGII, TIFLIS, GEORGIAN SSR.

UNCLASSIFIED

USSR

UDC 521.1.512-019

UNGIADZE, A. A., Institute of Physiology, Academy of Sciences
Georgian SSR

"Formation of Conditioned Fear Response by Stimulating Hippocampus"
Tbilisi, Soobshcheniya Akademii Nauk Gruzinskoy SSR, Vol 57, No 1,
1970, pp 169-172

Abstract: Experiments were conducted with adult cats with permanently implanted electrodes. Antero-dorsal hippocampus stimulation (unconditioned stimulus) of the animals produced conditioned emotional fear behavior. The conditioned reaction became apparent after 5-9 stimuli. After establishment of the reaction, the conditioned sound evoked slow potentials in the hippocampus, hypothalamus and in the sensorimotor area of the cortex, similar to the waves arising after cessation of hippocampus stimulation. It was concluded that this generalized slow activity may be due to the influence of the mesencephalic reticular formation.

1/1

USSR

UDC: 533.09.07

3

AUZINYA, L. K., LIVEPINYA, V. E., ZAKE, M. V., MEL'NIKOV, V. K.,
MEL'NIKOV, VI. K., UNGURS, I. A., and TSIYELENS, U. A.

"Method of Complex Experimental Investigations of Thermophysical
Processes in a Chemically Active Coaxial Plasma Jet With Ti
Particles"

Riga, Izvestiya Akademii nauk Latvyskov SSR, No 2, 1972, pp 60-68

Abstract: Very little attention is now being given to low-
temperature plasma jets with dispersed particles. Consequently,
the purpose of this paper is to give the results of complex ex-
perimental investigations into the coaxial jet of a low-
temperature argon plasma with dispersed particles of Ti. Mea-
surements are made of the gas-dynamic parameters of a single-
phase jet, variations in the chemical composition of the dispersed
particles from the characteristics of the two-phased jet are
studied, the spectral and integral characteristics of energy
losses through radiation are obtained, and the electrical con-
ductivity of the jet flux is investigated. The experimental
equipment, a diagram of which is given, consists of arc heaters,
a coaxial nozzle, a device for introducing powders into the jet,
and measuring instruments. Of the features of these experiments,
1/2

AUZIRYA, L. K., et al, Izvestiya Akademii nauk Latvyskov SSR,
No w, 1972, pp 60-63

UDC: 533.09.07

the most interesting is the chemical conversion of the Ti into
compounds containing large quantities of nitrogen in the form of
nitrides and oxynitrides.

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- 113 -

1/2 020
TITLE--ELECTROPHYSIOLOGICAL, UNCLASSIFIED, AND FUNCTIONAL DATA DURING EARLY
EXPERIMENTAL CHOLESTEROL ATHEROSCLEROSIS -U-
AUTHOR--UNGURYANU, D.V.
COUNTRY OF INFO--USSR
SOURCE--ZENAVCONKHRAHENIE 1970, 13(1), 42-5
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--CHOLESTEROL, ATHEROSCLEROSIS, RABBIT, BLOOD PRESSURE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD70/605059/D04 STEP NO--UR/0581/70/013/001/0042/0045
CIRC ACCESSION NL--AP0144263
UNCLASSIFIED

2/2 020
 CIRC ACCESSION NO--AP0144263 UNCLASSIFIED
 ABSTRACT/EXTRACT--(U) GP-C- ABSTRACT. EXPTL. ATHEROSCLEROSIS WAS INDUCED
 IN RABBITS BY THE ADMINISTRATION OF 10 ML OF A 5PERCENT SOLN. OF
 CHOLESTEROL IN SUNFLOWER SEED OIL EVERY DAY FOR 30 OR 60 DAYS. THE
 CONCNS. OF SOME COMPONENTS OF THE BLOOD SERUM (VALUES GIVEN IN THE ORDER
 OF CONTROL, 30 DAYS, AND 60 DAYS, RESP.) WERE: CHOLESTEROL 62, 632, 875
 MGPERCENT; LECITHIN 121, 411, 439 MG PERCENT; BETA GLOBULINS 11.52,
 13.99, 15.81PERCENT; GAMMA GLOBULINS 14.04, 17.82, 18.77PERCENT; ALPHA
 LIPOPROTEINS 51.15, 30.46, 21.22PERCENT; BETA LIPOPROTEINS 43.85, 69.54,
 73.76PERCENT. THE BLOOD PRESSURE DID NOT CHANGE. THE FREQUENCY OF
 AFFERENT IMPULSES IN THE AORTIC NERVE DID NOT CHANGE DURING THE 1ST
 MONTH AND INCREASED DURING THE 2ND MONTH OF THE EXPT.
 KISHINEV. MED. INST., KISHINEV, USSR. FACILITY:

UNCLASSIFIED

USSR

UDC: 621.315.582

CHIBAN, A. G., HEGRESEUL, V. V., OUSH, P. T., GORCHAK, L. V.,
 UNGURYANU, G. I., and SMIRNOV, V. G.

"Solar Elements Using p-GaAs_{1-x}P_x-n-GaAs Heterojunctions"
 Tashkent, Geliotekhnika, No 1, 1972, pp 30-33

Abstract: The results of investigations made for determining the volt-ampere, load, and spectral characteristics of heterojunctions made by liquid epitaxial growth of solid solutions of GaAs_{1-x}P_x on a GaAs substrate. The purpose of the research was to estimate the possibilities of using the p-GaAs_{1-x}P_x-n-GaAs system as photoconverters. For the substrate, n-type GaAs with a μ of 2500-3500 cm²/V·sec and an electron concentration of $7 \cdot 10^{16}$ to $4 \cdot 10^{17}$ per cc was used. The crystals of the material were oriented in the (111) plane and were covered by a solution of gallium containing dissolved GaP; the doping impurity was zinc, in a pure hydrogen atmosphere. Crystal growth was made in a temperature range of 760-910° C. Curves are plotted for the volt-ampere characteristic, the load characteristic, and the spectral distribution of the vapor collection coefficient for the heterojunctions. The basic advantage of the materials is that, in the form of solar elements, they can be used for operation at temperatures above 200° C, with an increase in the utilization percentage of the solar spectral energy.

USSR

UNINSKIY, A. P.

UDC: 517.514

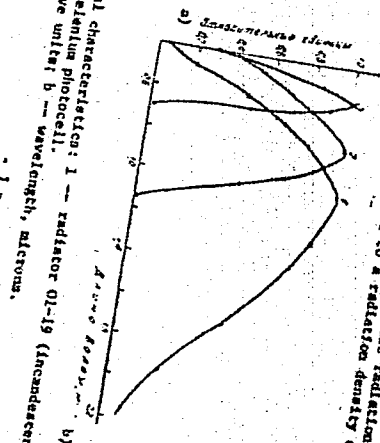
"Inequalities in Mixed Norm for Trigonometric Polynomials and Integral Functions of Finite Power"

Teoremy Vlozheniya i Ikh Prilozheniya [Imbedding Theorems and Their Applications--Collection of Works], Moscow, Nauka Press, 1970, pp 212-218, (Translated from Referativnyy Zhurnal Matematika, No 8, 1970, Abstract No 8B77, by the author).

Translation: Trigonometric polynomials of n variables and integral functions of finite power are studied for which evaluations of the norms in various mixed-type metrics are made. One imbedding theorem is presented, the proof of which is based on these evaluations.

UNISHKOV, V.A.

Fig. 1. Spectral characteristics: 1 — radiator QI-19 (incandescent lamp); 2 — VPI; 3 — selenium photocell.
Key: a — relative unit; b — wavelength, microns.



[1 - USSR - P]

This paper describes the voltage-current characteristics of high voltage photocells with λ -type junctions at radiation intensities of about 10 volts from a working surface of one square centimeter and an efficiency of about 10% at the usual illumination (0.1 watt/cm²). The VPI current increases more than 1000 times [2] when the radiation flux density varies with a linear rate observed to a radiation density of 10 to 25 watt/cm².

Article by A. P. Landman, D. S. Strekov, V. A. Unishkov, and V. A. Chazkov; Institute of Electronics, Russian, No. 1, 1973, 1-6.

Investigation of High Voltage Photocells at Low Radiation Intensities

UDC 621.381.3.001

JPRS 60570
16 November 1973

Caro

USSR

UDC: 621.472:621.365

STREBKOV, D. S., UNISHEV, V. A., and CHVARKOVA, V. A.
"Design and Experimental Investigation of High-Voltage n^+-p-p^+
Photoconverter Structure"

Tashkent, Geliotekhnika, No. 4, 1971, pp 3-8

Abstract: This paper is based on an earlier article (Landsman, A. P. and Strebkov, D. S., Geliotekhnika, 1970, No. 2) in which it was shown that a base contact with a low resistance is a necessary condition for the efficient operation of a high-voltage photoconverter cell with a radiation concentrator. The present paper finds that the best way of attaining this condition is through an n^+-p-p^+ structure, and gives the results of theoretical and experimental investigations into this type of photocell. The authors begin the theoretical part of their paper by considering such a cell illuminated parallel to the plane of the p-n junction, in which the base region, of high-resistance p-type silicon, has a portion with a variable concentration of an acceptor impurity whose distribution is such as to provide a constant field accelerating minority carriers in their movement to the p-n junction. Measurements made in the experimental part of the article show that in several lots of the specimens tested, the width of the p region varied from
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USSR

STREBKOV, D. S., et al., Galiotekhnika, No 4, 1971, pp 3-8

370 to 150 microns, the width of the n region from 2-4 microns, and the width of the metallic contact layer from 10-20 microns. Curves are given for the volt-ampere characteristics of the device for a light flux power of up to 7700 kW/m² in a bitaraboloid optical oven consisting of light sources with an arc temperature of up to 5500° C. Spectral characteristics ranging from 400 to 1200 nm are also plotted. The authors are members of the All-Union Order of Red Banner Labor Scientific Research Institute of Current Sources.

2/2

- 106 -

1/2 021

UNCLASSIFIED

PROCESSING DATE--27NOV70

TITLE--DETERMINATION OF THE STERIC ORIENTATION OF THE HYDROXYL GROUPS OF
STEREOMERIC 4,ETHYNYL,4,PIPERIDINOLS AND THEIR ANALOGS ACCORDING TO
AUTHOR--(05)--MAMONOV, V.I., DVORYANTSEVA, G.G., SOKOLOVA, T.D., SYSOYEVA,
E.B., UNKOVSKIY, B.V.
COUNTRY OF INFO--USSR

SOURCE--ZZH. ORG. KHM. 1970, 6(5), 1087-91

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--STEREOCHEMISTRY, IR SPECTRUM, PIPERDINE, HYDROXYL RADICAL,
QUINOLINE, ALKYNE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/1266

STEP NO--UR/0366/70/005/005/1087/1091

CIRC ACCESSION NO--APG134940

UNCLASSIFIED

2/2 021
 CIRC-ACCESSION NO--AP0134940 UNCLASSIFIED
 ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE WAVE NO., THE INTENSITY, AND
 THE WIDTH AT MID POINT OF IR BANDS ASSIGNED TO AXIAL (ALPHA) OH GROUPS
 OF 2R, 4R PRIME1, DISUBSTITUTED, 4, HYDROXY, 1, 5, DIMETHYLPIPERIDINES (I)
 WERE ALL HIGHER THAN THOSE ASSIGNED TO THE EQUATORIAL (EPSILON) OH
 GROUPS. E.G. I (R EQUALS H, R PRIME1 EQUALS C TRIPLE BOND CH) HAD AN
 ALPHA OH BAND AT 3619 CM PRIME NEGATIVE1 AND AN EPSILON OH BAND AT 3611
 CM PRIME NEGATIVE1. SIMILAR DIFFERENCES WERE FOUND WITH OTHER I (R AND
 R PRIME1 GIVEN): ME, C TRIPLE BOND CH; H, ET; AND ME, ET. ANALOGOUS
 ALPHA EPSILON OH BAND DIFFERENCES EXIST IN 4, (R, SUBSTITUTED),
 4, HYDROXY, 2, METHYLDECAHYDROQUINOLINES (R IS ET OR C TRIPLE BOND CH).
 FACILITY: MOSK. INST. TONKOT KHIM. TEKHNOL. IM. LOMONOSOVA, MOSCOW,
 USSR.

UNCLASSIFIED

1/2 022

UNCLASSIFIED
TITLE--IR ABSORPTION SPECTRA AND SPATIAL STRUCTURE OF STERO ISOMERIC
1,2,5,TRIMETHYL,4,HYDROXY,4,PEPERIDYLCARDINOLS -U-
AUTHOR--(05)-MAMONOV, V.I., DVORYANTSEVA, G.G., SHULAYEV, N.P., SYDYEVA,
E.G., UNKOVSKIY, H.V.
COUNTRY OF INFO--USSR

SOURCE--KHIM. GETEROTSIKL. SOEDIN. 1970 (2) 173-9

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--IR SPECTRUM, MOLECULAR STRUCTURE, HYDROXYL RADICAL,
HETEROCYCLIC NITROGEN COMPOUND, HYDROGEN BONDING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--1992/1503

STEP NO--UR/0409/70/000/002/0173/0179

CIRC ACCESSION NO--AP0112497

UNCLASSIFIED

022
CIA ACCESSION NO--AP0112497 UNCLASSIFIED
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CONFIGURATION AND CONFORMATION OF
I (R PRIME1 AND R PRIME2 EQUALS H, ME, ET, AND PH) WERE ESTD. ON THE
BASIS OF IR SPECTROSCOPIC STUDY OF I INTRAMOL. H BONDS. PROCESSING DATE--0200170

UNCLASSIFIED

89

012
UNCLASSIFIED
PROCESSING DATE--3006170
TITLE--MASS SPECTROMETRIC STUDY OF AMINODEOXY SUGARS -U-
AUTHOR--(051)-VOLFSON, N.S., ZOLOTAREVA, G.M., BOCHKAREV, V.N., SMOLINA,
Z.I., UNKOVSKIY, B.V.
COUNTRY OF INFO--USSR
SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM 1970, (2), 437-9
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--MASS SPECTROMETER, SUCROSE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1998/0517
CIRC ACCESSION NO--AP0121191
STEP NO--UR/0062/70/000/002/0437/0439
UNCLASSIFIED

2/2 012

CIRC ACCESSION NO--AP0121191

UNCLASSIFIED

PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MASS SPECTRA WERE DESCRIBED BY
LINE TABULATIONS FOR 10 3,AMINO,3,4,DIDEOXY SUGARS. IN THE MOL. IONS
OF THESE SUGARS, A NEW FORM OF RING CLEAVAGE WAS FOUND IN WHICH THE 2-3
BOND IS RUPTURED ALONG WITH THE CYCLIC HEMIACETAL BOND, SO AS TO FORM
AFTER MIGRATION OF THE H ATOM TO THE N FRAGMENT, AN ION R SUB2 N PRIME
POSITIVE:CHCH SUB2 CHOH AS A RESULT OF ENERGETIC ADVANTAGE OF THIS FORM
OF CLEAVAGE VS. THE CONVENTIONAL ONES OBSERVED FOR OTHER SUGAR DERIVS.
FACILITY: INST. KHIM. PRIR. SOEDIN., MOSCOW, USSR.

UNCLASSIFIED

1/2 026
UNCLASSIFIED
TITLE--INTRAMOLECULAR REARRANGEMENT OF SUBSTITUTED
3,6-DIHYDRO-2,1H-PYRIMIDINETHIONES -U-
AUTHOR--(03)-IGNATOVA, L.A., UVECHKIN, P.L., UNKOVSKIY, B.V.
PROCESSING DATE--13NOV70
COUNTRY OF INFO--USSR
SOURCE--ZH. VSES. KHIM. OBSHCHEST. 1970, 15(2), 238
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--INTRAMOLECULAR MECHANICS, PYRIMIDINE, ORGANIC SYNTHESIS,
CHEMICAL REACTION MECHANISM, MOLECULAR STRUCTURE, IR SPECTRUM, UV
SPECTRUM, THIOL
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3002/1061
CIRC ACCESSION NO--AP0128488
STEP NO--UR/0063/70/015/002/0238/0238
UNCLASSIFIED

2/2 026
CIRC ACCESSION NO--AP0128423 UNCLASSIFIED
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. HEATING 0.67 G
4,6,6,TRIMETHYL,3,PHENYL,3,6,DIHYDRO,2(1H),PYRIMIDINETHIONE 0.5 HR WITH
CONCD. HCL GAVE 0.47 G 4,4,6,TRIMETHYL,2,PHENYLAMINO,4H,1,3,THIAZINE, M.
122-3.5DEGREES. THE STRUCTURE WAS CONFIRMED BY IR AND UV SPECTRA. A
MECHANISM FOR THE REACTION WAS PROPOSED. FACILITY: MOSK. INST.
TONKOT KHIM. TEKHNOLOG. IM. LOMONOSOVA, MOSCOW, USSR.

PROCESSING DATE--13NOV70

UNCLASSIFIED

USSR

UDC 621.383.333.

ASHKINAZI, G. A., ZUMBEROV, V. V., KASMYNIN, G. M., KUZMIN, V. L.,
RUKHAMKIN, V. M., TOOMSOO, G. K., UNT, E. T., CHELNOKOV, V. YE.,
SHUMAN, V. B., YAKIVCHIK, N. I.

"Power Silicon Diffused High-Frequency Rectifiers of the High-Frequency Series"

Moscow, V sb. Silovyye poluprovodn. pribory (Power Semiconductors Devices -- collection of works), 1967, pp 3-13 (from RZh -- Elektronika i yeye primeneniye, No 2, Feb 70, Abstract No 2B131)

Abstract: The process is described for preparation of a p⁺ - p - n⁺ - n structure. Dynamic and voltage-current characteristics and classifications are presented, and data on the permissible loads of power silicon high-frequency rectifiers of the high-frequency (VCh) series at frequencies up to 100 kHz are given. 1 ref. S.A.

1/1

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UNT E. T.

USSR

UDC 621.382.2

ASHKINAZI, G. A., ZUMBEROV, V. V., KASMYNIN, G. M., KILIMIN, V. I.,
RUKHAMKIN, V. M., UNT, E. T., CHELNOKOV, V. YE., YAKIVCHIK, N. I.
"Effect of Gold Atoms on the Electrophysical Parameters of Silicon
Diffused $p^+ - p - n - n^+$ Structure"

V sb. Silovyye poluprovnikov pribory (Power Semiconductor Devices --
Collection of Works), Moscow, 1969, pp 70-78 (from RZh-Elektronika
i yeye primeneniye, No 4, Apr 70, Abstract No. 4B157)

Translation: This paper investigates $p^+ - p - n - n^+$ structures prepared on a base of n-type Si by diffusion of boron and aluminum for creation of p- and p^+ -layers and by diffusion of phosphorous for creation of a n^+ -contact. The thickness of the $p^+ - p$ and $n^+ - n$ layers is 100 and 150 microns, respectively. Diffusion of the gold is realized from a metallic layer of Au, chemically precipitated on the surface of the structure or from $AuCl_3$ in the open air at a temperature of $800-1100^\circ C$. Cooling of the structure

USSR

ASHKINAZI, G. A., et al, V sb. Silovvye poluprovnikov pribory, 1969, pp 70-78 (from RZh-Elektronika i yeye primeneniye, No 4, Apr 70, Abstract No 4B157)

at the end of diffusion was either forced by blowing or was accomplished at a rate less than 20° C/min. The dependencies were studied of the magnitude of the lifetime of the holes τ_p in the n-base, on the temperature for diffusing the gold. Experiments showed that the magnitude of τ_p practically did not depend on the resistivity of the base high-resistance n-layer; the input of gold atoms into the p-n structures is found in the interstices; with an increase of the concentration of gold atoms, the magnitude of the reverse current increases linearly. 4 ill. 4 ref. V.G.

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- 163 -

USSR

UDC 632.95.02

FADEYEV, Yu. N., Doctor of Biological Sciences, UNTERBERGER, V. K., Candidate of Agricultural Sciences, CHEKALINA, V. I., and MARKOVA, L. I., All-Union Scientific Research Institute of Plant Pathology

"The Acaricide Activity of O-Butyl-S-Methylbenzylthiophosphonate"

Moscow, Khimiya v Sel'skom Khozyaystve, Vol 11, No 2, 1973, pp 29-31

Abstract: The active ingredient of the acaricide which is also called 228-F was tested on the common spider mite *Tetranychus urticae*. A natural Moscow region mite was used as the sensitive breed, since it had not previously been treated with pesticides and had been cultivated on bean plants in the laboratory for some time. A resistant breed was acquired in the laboratory by treating sensitive mites with methylethylthiophos. Infested leaves were doused with a water-acetone emulsion containing the preparation and a mortality count was taken 72 hours later. To determine contact, intestinal and ovicide action infested leaves were submerged in the solution for 5 seconds. A mortality count was made in 72 hours and unhatched eggs were counted in 4 days. To determine length of action mites were placed on treated bean leaves 3, 5, and 10 days after treatment, then a mortality count was made 72 hours later. The preparation was also used on broad beans against

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FADEYEV, Yu. N., et al., Khimiya v Sel'skom Khozyaystve, Vol 11, No 2, 1973, pp 29-31

aphis craccivora Koch, with a mortality count made after 48 hours. O-butyl-S-methylbenzylidithiophosphonate showed a high contact acaricidity not only with sensitive but also with resistant mites. The acaricide had poor lasting and ovicide results, but did affect the vitality of larvae from treated eggs. Mixture with BI 58 did not lessen toxicity and increased both lasting effects and the time required for the mites to become resistant to the acaricide.

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Organophosphorous Compounds

USSR

UDC 632.95

(2)

BLIZNYUK, N. K., KVASHA, Z. M., SPLINTSEVA, L. M., FADAYEV, YU. N., UNTERBERGER, V. K., and YCLOVA, M. N., All-Union Scientific Studies Institute of Phytopathology
 "Process for Preparing Mixed Dialkyl Esters of the Higher Alkylphosphonous Acids"

Author's Certificate No 340665, filed 22 Jun 70, published 29 Jun 72, (from Referativnyy Zhurnal -- Khimiya, No 8(II), 1973, Abstract No 8N470P by T. G. Chekareva)

Translation: Compounds having the general formula $RP(O)(OR')OR''$ (I) (R = alkyl, R' and R'' = C_1 to C_6) have acaricidal activity to the stable and sensitive form of vegetation mites. They are prepared by the reaction of $RP(O)(OR')OH$ (II), with a 5-10-fold excess of $R''OH$. For example, Cl_2 is passed through a solution of 0.03 moles of II ($R=C_9H_{19}$, $R'=C_6H_{13}$) and 0.15 moles of absolute BuOH in 20 ml of CH_2Cl_2 until the appearance of a yellow-green color. It is then concentrated and product I ($R=C_9H_{19}$, $R'=C_6H_{13}$, $R''=Bu$) is obtained, having $n_D^{20} = 1.4435$, $d_4^{20} = 0.9211$, a boiling temperature of 176 to 178° at 1 (?) mm, a yield of about 100%. Other analogous compounds were prepared. R, R' and R''

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BLIZNYUK, N. K., et al., Author's Certificate No 340665, filed 22 Jun 70,
published 29 Jun 72

are given together with the boiling temperature in °C/mm, n_D^{20} , n_D^{20} ,

C_9H_{19} , C_6H_{13} , Et, 166-8/1, 1.4418, 0.9277;

C_9H_{19} , C_6H_{13} , Me, 160-2/1, 1.4430, 0.9425;

C_9H_{19} , C_6H_{13} , Pr, 172-4/1, 1.4430, 0.9270;

C_6H_{13} , Bu, Et, 124-6/1, 1.4320, 0.9512;

C_6H_{13} , Bu, 118-20/1, 1.4350, 0.9443;

C_9H_{19} , C_5H_{11} , Et, 158-60/1, 1.4400, 0.9446.

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UDC 632.95

GAR, K. A., ~~INTERBERGER~~, V. K., BEZUGLIY, S. F., LUKANINA, V. S., AND
VOLKOV, V. N., All-Union Scientific Studies Institute of Chemical Compounds
for the Protection of Plants
"Insecticide Formula"

Author's Certificate No 213452, filed 4 Apr 66, published 2 Jun 72 (from
Referativnyy Zhurnal -- Khimiya, No 8(II), 1973, Abstract No 8N480P by T. A.
Belyayeva)

Translation: The insecticide trichlorol-5 contains from 4-15% trichlorometa-
phos-3 (I), 85-96% high purity unfiltered mineral oil, and 0-6% of the
emulsifier OP-4. For example, 92% of the light unfiltered oil having an
unsulfonated residue of 93%, 5% of (I), and 3% OP-4. The order of the relative
effectiveness of the oleophoses is as follows -- olemetaphos, trichlorol-5,
and preparation No 30 -- relative to the wintering phase of the California
scale insect. Trichlorol -5 in a 2% concentration showed a mortality of 92.4%
of the pests.

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UDC 632.95

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UNTERBERGER, V. K., FADEYEV, YU. N., YURLOVA, M. N., KARAVAYTSEVA, Z. D., BLIZNYUK, N. K., KVASHA, Z. N., KLIMOV, O. V., All-Union Scientific Research Institute of Phytopathology, Moscow, Ministry of Agriculture USSR

"Insectoacaricide"

USSR Author's Certificate No 249399, filed 11 Dec 67, published 7 Jan 70 (from RZh-Khimiya, No 18, 25 Sep 70, Abstract No 18N625, by P. V. Popov)

Translation: Compounds with the general formula $(Me)(RS)P(S)SCH_2CH_2-N(RI)(RII)$ (R = C_1-C_6 -- alkyl; RI and RII = lower alkyl or Ph) exhibit properties of insecticides and acaricides.

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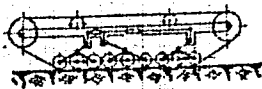
UDC: 629.1.032

UNTEVSKIY, A. A., KANDELYA, M. V., Main Specialized Design Office on Machines for the Far Eastern Zone

"A Caterpillar Track"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 10, Apr 72, Author's Certificate No 331958, Division B, filed 9 Jan 70, published 14 Mar 72, p 58

Translation: This Author's Certificate introduces a caterpillar track designed chiefly for self-propelled harvesters operating in rice fields. The track contains a frame, an endless caterpillar tread, a drive wheel, guide wheels, support rollers and balanced support carriages fastened to the frame by rotating levers. As a distinguishing feature of the patent, in order to improve tracking on very rough terrain and to reduce impact loads, the rotating levers for the balanced carriages are interconnected through a hinge-and-lever system with an elastic element.



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UNZHIN, R.V.

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R. M. ZYGOVNIK, Ye. S. Golits, R. V. Unzhin
BIOELECTRIC SYSTEM ELEMENTS

PP 55-102

50: JPRS 55534

6 Aug 72

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In recent years, the most varied biomedical indexes have been measured by means of bioelectric devices -- from the electric force activity in man to electroencephalograms of fetal. A common characteristic of all the studies of this type is that the sensitive elements of the measuring systems are at a certain distance from the researcher and can not be regulated during the measurement process. On the other hand, inasmuch as bioelectricity permits the study of organisms under the conditions of their natural behavior, the more comfortable the gathering of the information is, the more "physiological" the results obtained. Finally, it is important to note that depending on the purpose of the study and type of information gathered, the structure and complexity of the entire bioelectric system as a whole and its individual elements, in particular, change.

The devices providing for gathering of biological information and its conversion to a form suitable for further amplification and transmission over a radio channel can be called bioinformation converters. As a rule, the output systems of bioinformation converters are an electric voltage or current. The main requirement for bioinformation converters consists in obtaining a representation of the measured parameters and maximum noiselessness. It is possible to calculate bioinformation converters as the matching device between the subject and the measuring system which is simultaneously a filter which passes only given signals.

For example, the electrodes on the thorax of the examinee can operate in the type of measuring circuit, forming recording of the electrocardiogram, an impedance pneumogram, and a rheostaticogram.

Consequently, the nature of the information obtained by means of bioelectric systems is determined not only by the sensitive element at the input but also by the characteristics of the structure of the system as a whole. All the measured medical-physiological parameters can be divided into two large groups: a) measured directly, b) measured indirectly.

UNZHIN, R.V.

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BIOTELEMETRIC SYSTEM ELEMENTS

R. M. Bayevskiy, Ye. S. Gellor, R. V. Unzhin

Pp. 55-101

In recent years, the most varied biotelemetric systems have been developed by means of biotelemetric devices -- from the electric layer potential to electroencephalogram of rats. A common characteristic of all the studies of this type is that the sensitive elements of the recording systems are at a defined distance from the research object and can not be removed during the measurement process. On the other hand, inasmuch as biotelemetric systems are a way of transmitting under the conditions of their natural activity, the "noise" comfortable for the gathering of the information is the more physiological and results obtained. Finally, it is important to note that depending on the purpose of the study and type of information gathered, the structure and complexity of the entire biotelemetric system as a whole and its individual elements, in particular, change.

The devices providing for pathing of bioelectric information and its conversion to a form suitable for further registration and transmission over a radio channel can be called biotransformation converters. As a rule, the output systems of biotransformation converters are an electric voltage or current. The most important requirements on biotransformation converters consist in minimum distortion of the measured parameters and maximum resistance to noise. It is possible to calculate biotransformation converters as the matching device between the subject and the measuring system which is simultaneously a filter which passes only given signals.

For example, the electrodes on the thorax of the examinee can, depending on the type of measuring circuit, insure recording of the electrocardiogram, an impedance pneumogram, and a thocardiogram.

Consequently, the nature of the information obtained by means of biotelemetric systems is determined not only by the sensitive elements at their input but also by the characteristics of the structure of the system as a whole.

All the measured medical-physiological parameters can be divided into two large groups: a) measured directly, b) measured indirectly.

UNZHIN, R.V.

50: JPRS 55354

6 MAR 73

APPLICATION OF BIOTELEMETRY FOR RESEARCH IN
THE PHYSIOLOGY OF LABOR AND SPORTS

EQUIPMENT FOR STUDYING FREELY MOVING PEOPLE¹

R. V. UNZHIN, L. S. DUBROVINSKY
Research Institute

pp 103-135

In preparing in a brief description of the procedure and apparatus permitting objective observations of freely moving people, it is necessary to point out that there are still no industrial devices for this purpose corresponding to the above-discussed requirements. The first Soviet biotelemetric device was created by our industry -- the TSP-1 radiotelecardiograph -- built in connection with its weight, he considered as an instrument used to study the physiology of labor. For lack of any other device, it was used in a number of studies of the physiology of sports (V. V. Matvey, 1960; L. I. Koryakov, V. V. Patev, 1962).

However, at the present time only instruments for determining the pulse rate, recording electrocardiograms and recording movements have entered steadily into research practice. Of course, out of all the functional processes, the pulse rate primarily attracts the physiologist and doctor of sports medicine during observations of man under natural conditions of muscular activity. The cardiac rhythm is exceptionally dynamic and closely related to the nervous humoral regulatory systems of the whole organism. Therefore, it can reflect the intensity of physiological stress and shifts during the course of work (V. V. Koroblat, 1961, 1962; Matvey, 1961, et al.). It is no accident that in recent years interest has risen in various technical pulse rate analyzers. Special surveys (Zemol, 1960) have been devoted to the methods of studying this index.

Various display methods have been proposed for radiotelemetry of the cardiac rhythm: by heart tones (Seligor, 1953), by variations in filling of the concha auricular with blood recorded by a photoelectric sensor (L. P. Shvartov, 1959; Harten, Koroblat, 1961, et al.), by the bioelectricity of the heart (the majority of papers). As applied to the studies of sportsmen and laborers, only the last procedure has been implemented. Its advantages over

¹Data presented by L. S. Shvartov are used in this chapter.

UPADKHAYA, G.S.A.

TECHNOLOGY OF PRODUCING NEW MATERIALS

JPRS 59873
25 August 1973

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Translation of Russian-language collection: Tekhnologiya
Polucheniya Novykh Materialov, 1972, Kiev.

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USSR

UDC: 537.535.2:669.01

SAMSONOV, G. V., OKHREMCHUK, L. N., UPADKHAYA, G. Sh., and NAUMENKO, V. Ya.

"Work Function of Titanium and Niobium Carbides in the Homogeneity Region"

Moscow, Teplofizika Vysokikh Temperatur, Vol. 8, No. 4, 1970, pp 921-922

Abstract: This brief paper describes experiments performed on titanium and niobium monocarbides and undertakes to explain the basic expressions of the variations in their work function, along with the variations in their other physical characteristics such as electrical resistance, thermal conductivity, and the like. In this work the characteristics of the carbide phase electron structure were taken into account. The original specimens were in the form of cylinders 8 mm in diameter and 10 mm high. The work function was measured by using full current flow in a temperature interval of 1400-2100° K. The authors find that their results agree with those obtained in research on the thermoemission of Nb₂C.

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UDC:620.179.13

BEKESHKO, N. A., UPADYSHEV, A. B., KISELEV, V. S.

"Quality Testing of Integrated Circuits by Thermal Radiation of the Surface"

Defektoskopiya, No. 3, 1970, pp. 101-105

Abstract: Results are presented from experimental studies involving location of defects in thin-film integrated circuits by a thermal field method. Testing of the thermal field of integrated circuits allows location of deviations of thermal operating modes from the nominal modes, and in some cases allows reasons for formation of defects to be determined. The thermal testing method allows circuits both with and without protective coverings to be tested. The protective coverings change the picture of the thermal field but do not prevent determination of defects on the basis of changes in the thermal field. Comparison of the isothermal picture of the thermal field and the geometric dimensions of the circuit elements shows that the half width of the signal maximum from elements with protective coatings is increased by 2-3 times.

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1/2 029 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--"USING THE THERMAL METHOD FOR DISCOVERING BREAKS IN METALLIC AND
NONMETALLIC PRODUCTS" -U-
AUTHOR-(02)-BEKESHKO, N.A., UPADYSHEV, A.B.
COUNTRY OF INFO--USSR
SOURCE--SVEROLOVSK, DEFEKTOSKOPIYA, NO. 1, 1970, PP 24-29
DATE PUBLISHED-----70
SUBJECT AREAS--METHODS AND EQUIPMENT, MATERIALS
TOPIC TAGS--CATHODE RAY TUBE, THERMAL EFFECT, NONDESTRUCTIVE TEST,
LAMINATED STRUCTURE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
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CIRC ACCESSION NO--AP0100671
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0100671

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EXPERIMENTS ARE DESCRIBED TO DETERMINE THE POSSIBILITIES OF FINDING DEFECTS IN THE FORM OF BREAKS IN CONTINUITY, SUCH AS LAYER SEPARATION IN METALS AND NONMETALS, UNGLUEING IN CELLULAR STRUCTURES AND PASTED PRODUCTS BY THE THERMAL METHOD USED PRINCIPALLY FOR THE CONTROL OF THIN WALLED PRODUCTS. THE EQUIPMENT USED IN THIS METHOD PERMITS FIXING THE PICTURE OF THE TEMPERATURE DISTRIBUTION OVER THE SURFACE OF THE PRODUCT AS AN IMAGE ON A CATHODE RAY TUBE SCREEN, ON PHOTOGRAPHIC PAPER, OR IN THE FORM OF PROFILES IN INDIVIDUAL LINE SCANNING. THE AUTHORS USED THIS METHOD TO CONTROL METAL PRODUCTS OF UP TO 8 MM IN THICKNESS, OR CELLULAR PRODUCTS, AND NONMETALLIC PRODUCTS OF UP TO 15 MM IN THICKNESS. THE COMPLEXITY OF THE PROBLEM DEMANDS SPECIAL EQUIPMENT SUCH AS A HEAT SOURCE WITH AN OUTPUT POWER VARIABLE WITHIN BROAD LIMITS AND HIGHLY SENSITIVE RECEPTOR DEVICES, THE LATTER A NECESSITY SINCE THE SURFACE ON THE NONMETALLIC MATERIALS, SUCH AS PLASTICS, SHOULD NOT BE HEATED ABOVE 100DEGREESC. A SCHEMATIC DRAWING OF THE HEATING SYSTEM FOR CELLULAR STRUCTURES IS GIVEN, TOGETHER WITH CURVES FOR THE TEMPERATURE DISTRIBUTIONS ON THE SURFACES OF THE VARIOUS MATERIALS STUDIED. ANALYSIS OF THE HEAT IMAGES AND CURVES SHOWS THA THE HEAT IMAGE PERMITS DETERMINATION OF THE SHAPE, DIMENSIONS, AND LOCATION OF LARGE CONTINUITY DEFECTS. HOWEVER, COMPLEX TREATMENT OF THE IMAGE IS REQUIRED FOR MORE PRECISE TEMPERATURE DETERMINATIONS. IT IS THE AUTHORS' OPINION THAT USE OF THE THERMAL METHOD REQUIRES PRODUCTION OF BETTER EQUIPMENT WITH TEMPERATURE DISTRIBUTION RECORDS IN THE FORM OF AMPLITUDE PROFILES.

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